

CLAIMS

What is claimed is:

- 5 1. A MEMS anchor system for securing a base of a MEMS device to a substrate, comprising:
5 a plurality of anchors securing the base of the MEMS device to the substrate.
- 10 2. The MEMS anchor system of claim 1, wherein each anchor comprises a plurality of anchor legs, each anchor leg being attached at one end to the base of the MEMS device and attached at another end to the substrate.
- 15 3. The MEMS anchor system of claim 2, wherein the plurality of anchor legs comprises a first number of anchor legs that are orientated along a first direction, a second number of anchor legs that are orientated along a second direction, and the first number of anchor legs are stronger and longer than the second number of anchor legs.
- 20 4. The MEMS anchor system of claim 3, wherein the first number of anchor legs orientated along the first direction has a length that is at least twice the length of the second number of anchor legs orientated along the second direction.
5. The MEMS anchor system of claim 1, wherein the plurality of anchors are arranged in at least two rows, each row comprising at least two anchors.
6. The MEMS anchor system of claim 5, wherein each row comprises at least four anchors.

7. The MEMS anchor system of claim 1, wherein the plurality of anchors comprises at least eight anchors.

5 8. A MEMS apparatus, comprising:

a beam;

a base attached to one end of the beam;

a substrate; and

a plurality of anchors securing the base to the substrate.

10 9. The MEMS apparatus of claim 8, wherein the plurality of anchors is located away from the end of the beam attached to the base.

15 10. The MES apparatus of claim 8, wherein the width of the base is greater than the width of the beam.

20 11. The MEMS apparatus of claim 8, wherein each anchor comprises a plurality of anchor legs, each anchor leg being attached at one end to the base and attached at another end to the substrate.

12. The MEMS apparatus of claim 11, wherein the plurality of anchor legs comprises a first number of anchor legs that are orientated along a first direction, a second number of anchor legs

that are orientated along a second direction, and the first number of anchor legs are stronger and longer than the second number of anchor legs.

13. The MEMS anchor system of claim 12, wherein the first number of anchor legs
5 orientated along the first direction has a length that is at least twice the length of the second number of anchor legs orientated along the second direction.

14. The MEMS apparatus of claim 8, wherein the plurality of anchors are arranged in at least two rows, each row comprising at least two anchors.

15. The MEMS apparatus of claim 14, wherein each row comprises at least four anchors.

16. The MEMS apparatus of claim 8, wherein the plurality of anchors comprises at least eight anchors.

17. The MEMS apparatus of claim 8, further comprising a folded spring attaching the one end of the beam to the base.

18. The MEMS apparatus of claim 8, wherein the other end of the beam is free.

19. A MEMS apparatus, comprising:

a beam;

two bases, each base attached to one end of the beam;

a substrate; and

two sets of multiple anchors, each set of multiple anchors securing one of the two bases to the substrate.

5 20. The MEMS apparatus of claim 19, wherein each set of multiple anchors is located away from the end of the beam attached to the respective base.

21. The MEMS apparatus of claim 19, wherein the width of each one of the bases is greater than the width of the beam.

22. The MEMS apparatus of claim 19, wherein each anchor comprises a plurality of anchor legs, each anchor leg being attached at one end to the respective base and attached at another end to the substrate.

23. The MEMS apparatus of claim 22, wherein the plurality of anchor legs comprises a first number of anchor legs that are orientated along a first direction, a second number of anchor legs that are orientated along a second direction, and the first number of anchor legs are stronger and longer than the second number of anchor legs.

20 24. The MEMS anchor system of claim 23, wherein the first number of anchor legs orientated along the first direction has a length that is at least twice the length of the second number of anchor legs orientated along the second direction.

25. The MEMS apparatus of claim 19, wherein each set of multiple anchors is arranged in at least two rows of anchors, each row comprising at least two anchors.

5 26. The MEMS apparatus of claim 25, wherein each row comprises at least four anchors.

27. The MEMS apparatus of claim 19, wherein each set of multiple anchors comprises at least eight anchors.

10 28. The MEMS apparatus of claim 19, further comprising a folded spring attaching one end of the beam to one of the two bases.

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